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CEMENT CONCRETE FLOORING TILES

Lab ID	:	**CP-2018-01-24-05** **Date: 27-01-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Construction of Open Gym at Attur lake Ward No.03
Agency	:	Technical Manager(West), KRIDL, Bangalore.
Customer Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	24-01-18
Sample ID No	:	2018-01-24-05/02
Sample Type/ Size	:	Pre-Polished Designer Cement Concrete Tiles
Reference to BIS codes	:	IS 1237:2012
Date of test	:	24-01-18

1.Wet Transverse Strength

Sl.No.	Dimension (mm)			Wet Transverse Strength	Average	Requirement as per IS:1237-2012
	L	B	T	(N/mm^2)	(N/mm^2)	
1	400	400	12.48	8.47	8.72	The average wet transverse strength shall not be less than $3N/mm^2$.
2	400	400	12.18	9.54		
3	400	400	12.44	8.72		
4	400	400	12.44	9.14		
5	400	400	12.74	7.98		
6	400	400	12.51	8.44		

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2. Water Absorption

Sl.No.	Dimension (mm)			Water Absorption	Average	Requirement as per IS:1237-2012
	L	B	T	(%)	(%)	
1	400	400	12.11	3.15	3.38	The average percentage of water absorption shall not exceed 10.
2	400	400	12.54	3.24		
3	400	400	12.47	3.47		
4	400	400	12.69	3.11		
5	400	400	12.54	3.45		
6	400	400	12.55	3.87		

Note:
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Quality Manager

Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-01-17-04** **Date: 20-01-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Construction of Open Gym at Attur lake Ward No.03
Agency	:	Technical Manager(West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-01-18
Sample ID No	:	2018-01-17-04/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	18-01-18

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Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.98	–
2	Finess by Air permeablity method (m^2/kg, Min)	278.5	225m^2/kg, Min
3	Density (gm/cc)	3.15	–
4	Standard Consistency (%)	27.5%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	265 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1mm	Not more than 10 mm

Note:

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-01-17-04** **Date: 15-02-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Construction of Open Gym at Attur lake Ward No.03
Agency	:	Technical Manager(West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-01-18
Sample ID No	:	2018-01-17-04/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	18-01-18

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.5N/mm^2	Not less than 37 N/mm^2
3	28 Days	57.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-01-17-04**	**Date: 20-01-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.	
Address	:	Project Division, BBMP, Bangalore.	
Project Name	:	Construction of Open Gym at Attur lake Ward No.03	
Agency	:	Technical Manager(West), KRIDL, Bangalore.	
Customer's Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample condition	:	Satisfactory	
Date of Receipt	:	17-01-18	
Sample ID No	:	2018-01-17-04/02(a)	
Sample Type	:	40mm down size coarse aggregate	
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates)	
		IS: 2386 :1963(Part - 1,3,4) RA2011	
		IS 2386 Part 1: Particle Size and Shape	
		IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption	
		IS 2386 Part 4: Mechanical Properties	
Date of test	:	17-01-18	

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SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	234	234	1.6	98.4	90-100
3	20 mm	5467	5701	38.0	62.0	30-70
4	10 mm	4355	10056	67.0	33.0	10-35
5	4.75 mm	4683	14739	98.3	1.7	0-5
6	Pan	261	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-01-17-04** **Date: 20-01-18**

Sample ID No : 2018-01-17-04/02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.6	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.2	
3	Specific Gravity	2.68	_
4	Bulk Density(Loose) (Kg/l)	1.54	_
5	Bulk Density(Compacted) (Kg/l)	1.58	_
6	Water Absorption(%)	0.24	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-01-17-04** **Date: 20-01-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Construction of Open Gym at Attur lake Ward No.03
Agency	:	Technical Manager(West), KRIDL, Bangalore.
Customer Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-01-18
Sample ID No	:	2018-01-17-04/02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	17-01-18

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SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	254	254	5.1	94.9	90-100
3	10 mm	2555	2809	56.2	43.8	25-55
4	4.75 mm	1767	4576	91.5	8.5	0-10
5	Pan	424	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-01-17-04** **Date: 20-01-18**

Sample ID No : 2018-01-17-04/02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.8	
3	Specific Gravity	2.69	–
4	Bulk Density(Loose) (Kg/l)	1.56	–
5	Bulk Density(Compacted) (Kg/l)	1.59	–
6	Water Absorption(%)	0.24	–
7	Aggregate crushing Value(%)	23.4	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2018-01-17-04** **Date: 20-01-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Construction of Open Gym at Attur lake Ward No.03
Agency	:	Technical Manager(West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/Ynk Zone/WO/85/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-01-18
Sample ID No	:	2018-01-17-04/03
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	17-01-18
Total weight taken	:	1000 grams

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Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	85	85	8.5	91.5	90-100	90-100	90-100	95-100
3	2.36 mm	144	229	22.9	77.1	60-95	75-100	85-100	95-100
4	1.18 mm	157	386	38.6	61.4	30-70	55-90	75-100	90-100
5	600 micron	166	552	55.2	44.8	15-34	35-59	60-79	80-100
6	300 micron	176	728	72.8	27.2	5-20	8-30	12-40	15-50
7	150 micron	176	904	90.4	9.6	0-10	0-10	0-10	0-15
8	Pan	96	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-01-17-04** **Date: 20-01-18**

Sample ID No : 2018-01-17-04/03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.9	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	4.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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